dolomite is employed, of the composition given, in which 55+34=89 per cent, of the alkaline earths are present, so a dolomite consumption, from the furnace structure by the slag, of 5 per cent, is attained, i.e., 89xO'5=4'45 of alkaline earths (taken on the weight of the metallic charge) . . . (3lA). In general, this amount does not suffice, and one must make additions of lime in order to prevent further wearing of the banks. Formerly, generally, one used burnt lime, but since, however, this rapidly takes up water and then forms large amounts of fine lime dust, which are carried by the furnace gases through the ports into the chambers, and which damage these portions of its structure, one has turned more from the use of burnt lime and gone over to the employment of raw limestone. Limestone should, for open-hearth working, contain at the most 2 per cent. Si(>2, and this amount of silica requires for its satisfaction approximately 5 per cent, of lime, so that in such materials about 50 per cent-of free CaO remain for the satisfaction of free acids. From this for each 1 per cent, of necessary CaO, about 2 per cent.-of limestone should be employed . . . (81s).

(d) METAL AND SLAO IN THE OPEN-HEARTH FURNACE.

The free iron protoxide dissolved in the slag reacts, however, not only on the furnace structure, but also on the metal in the furnace. It is enabled to penetrate into the same, since iron protoxide is soluble in liquid iron. Hereby, however, the iron receives very undesirable properties ; it becomes red-short and its melting point is increased, and finally also the highest heating capacity of the furnace does not suffice to give the metal the necessary degree of fluidity for casting. Therefore, the entrance of iron protoxide into the iron must be profited by, which can only be achieved by adding to the latter substances which do not permit protoxide of iron in their presence, but convert it into metallic iron. For fulfilment of this proviso, only reducing agents are suitable, of which some are always present in all classes of iron technically employed.

They are dissolved in the melted metal and have a disposition